UNITED STATES PATENT AND TRADEMARK OFFICE

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10/516,893	12/03/2004	Richard J. Houldsworth	GB 020090	2398

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EXAMINER
TROWELL, CALVIN B

ART UNIT	PAPER NUMBER
4115	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>*1-11*</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>*1-11*</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>*03 December 2004*</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☒ All   b)☐ Some *   c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____ .

    3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date <u>*07/05/2005*</u>.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities: The "BRIEF

SUMMARY OF THE INVENTION" is missing. Appropriate action is required.

Claim Objections

2.   Claims 4-11 are objected to under 37 CFR 1.75(c) as being in improper form

because a multiple dependent claim *cannot depend from any other multiple dependent*

claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on

the merits.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

4.   Claims 7-11 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention.

As per claims 7-11, the recitation therein is unclear, confusing and indefinite. It is

not understood as to which method steps will be carried out by the claimed apparatus.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6.   Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per claims 1-6, the instant claims are merely directed to claim the computer program algorithms/software algorithms and are directed to nonfunctional descriptive which includes but is not limited to a compilation or mere arrangement of data. When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming nonfunctional descriptive material, i.e. abstract ideas, stored in a computer-readable medium or in a computer, does not make it statutory. In addition, the claim is tied to a particular machine or brings about a particular transformation of a particular article that do not pre-empt all uses of a fundamental principle in any field but rather are limited to a particular use, a specific application. When nonfunctional description material is recorded on some computer-readable medium, in a computer, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Hence, the claims do not provide any transformation and reduction of an article to a different state or thing, these claims failed the "machine-or-transformation test" and were not patent-eligible under 35 USC § 101. See _Diehr_, 450 U.S. at 185-86, 191-192, 209 USPQ (1981).

As per claim 7, this claim is directed to an apparatus, but lack the necessary physical components (hardware) to constitute a machine or manufacture. Therefore, these claim limitations can be reasonably interpreted as computer program modules -

software per se. Specifically, the specification discloses that this invention pertains to a

software system. Since the specification provides intrinsic evidence of software, the

claims are construed to cover software under the broadest reasonable interpretation. The

claims are directed to functional descriptive material, per se, which do not provide any

transformation and reduction of an article to a different state or thing, and fail the

"machine-or-transformation test". Hence, they are not patent-eligible under 35 U.S.C.

§101. See *Diamond v. Diehr*, 450 U.S. 175, 185-186, 191-192, 209 (1981). See MPEP §

2106.01.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8.   Claims 1-6 as best understood are rejected under 35 U.S.C. 102(b) as being

anticipated by "Java 2 Platform SE v1.3.1: Class ClassLoader" by Sun Microsystem

(hereinafter as Sun).

As per claim 1, Sun broadly discloses a method for operating a JAVA™ virtual

machine comprising loading a module comprising a parent JAVA™ class file, identifying

offspring JAVA™ class files listed within the parent JAVA™ class file, and preloading

the offspring JAVA™ class files (i.e. loading of parent and offspring class files is

standard functionality of JAVA™ java.lang.LoadClass object, see pages 5 and 6).

As per claim 2, Sun broadly discloses the step of loading the module from the data portion of a digital broadcast signal (i.e. creation of a class file from an array of bytes can be accomplished using defineClass object which are part of standard functionality of JAVA™, data in the digital broadcast signal can be used to load a class, see pages 8 and 9).

As per claim 3, Sun broadly discloses that preloading is carried out according to priority (i.e. class preloading can be accomplished by defining g a custom class loader method which is part of standard functionality of JAVA™ java.lang.ClassLoader object, see pages 1 and 2).

As per claim 4, Sun broadly discloses that a JAVA™ class file is executed concurrently with the preloading (i.e. class preloading can be accomplished by defining g a custom class loader method which is part of standard functionality of JAVA™ java.lang.ClassLoader object, see pages 1 and 2).

As per claim 5, Sun broadly discloses that the step of identifying suboffspring JAVA™ class files listed within the offspring JAVA™ class files (i.e. class preloading can be accomplished by defining g a custom class loader method which is part of standard functionality of JAVA™ java.lang.ClassLoader object, see pages 1 and 2) .

As per claim 6, Sun broadly discloses the steps of examining further modules for the presence of identified offspring JAVA™ class files and preloading the offspring JAVA™ class files accordingly (i.e. class preloading can be accomplished by defining g a custom class loader method which is part of standard functionality of JAVA™ java.lang.ClassLoader object, see pages 1 and 2).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made to
> a person having ordinary skill in the art to which the subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was
> made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under

35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
        obviousness or nonobviousness.

10.   Claims 7-11 as best understood are rejected under 35 U.S.C. 103(a) as being

unpatentable over "Java 2 Platform SE v1.3.1: Class ClassLoader" by Sun Microsystem

(hereinafter as Sun) in view of Kanungo et al (U.S. Pat. No. 6,407,759 B1).

        As per claim 7, it is noted that Sun does not disclose the receiving and processing

of a digital broadcast by a JAVA™ virtual machine. However Kanungo et al discloses

the receiving and processing of a digital broadcast (column 4, lines 5-7). Hence, it would

have been obvious to one ordinary skill in the art at the time the invention was made to

incorporate the receiving and processing of a digital broadcast, as disclose in Kanungo et

al into Sun. The addition of receiving and processing of a digital broadcast by a JAVA™ virtual machine would allow users to input operating system commands like reboot or close modal dialog box through a set top box (Kanungo et al: column 2, lines 35-38).

As per claim 8, it is noted that Sun does not explicitly disclose use of a set top box. However Kanungo et al discloses the use of a set top box (column 4, lines 5-7). Hence, it would have been obvious to one ordinary skill in the art at the time the invention was made to incorporate a set top box as the platform to support a JAVA™ virtual machine, as disclose in Kanungo et al into Sun. The addition of to a set top box as a platform to support JAVA™ applet execution and also when combined with other devices allow the system to be used for data processing (Kanungo et al: column 3, lines 51-55).

As per claim 9, it is noted that Sun does not explicitly disclose use of a set top box. However Kanungo et al discloses the use of a digital television (column 4, lines 5-7). Hence, it would have been obvious to one ordinary skill in the art at the time the invention was made to incorporate a digital television as, as disclose in Kanungo et al into Sun. The addition of to a digital television when combined with other devices allows the system to be used for data processing (Kanungo et al: column 3, lines 51-55).

As per claim 10, it is noted that Sun explicitly teaches that the JAVA™ virtual machine as a computer program (see page 20).

As per claim 11, it is noted that the teachings of Sun and Kanungo et al do not explicitly disclose that the JAVA™ virtual machine is at least partially implemented in hardware. However, such limitation of the JAVA™ virtual machine is at least partially implemented in hardware is old and well known and is also considered an obvious design

choice. Hence, it would have been obvious to one ordinary skill in the art at the time the

invention was made that a JAVA™ virtual machine is implemented in hardware.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

        Klicnik et al (US Pub. No. 20020184226 A1) discloses an independent class

loader for dynamic class loading.

        Bak et al (US Pat. No. 5999732) discloses techniques for reducing the cost of

dynamic class initialization checks in compiled code.

        Bak et al (US Pat. No. 6009517) discloses mixed execution stack and exception

handling.

        Foote et al (US Pat. No. 6167535) discloses object heap analysis techniques for

discovering memory leaks and other run-time information.

        Formhals et al (US Pub. No. 20020016958 A1) discloses remotely controlled

program operation.

        Click et al (US Pat. No. 6381737 B1) discloses an automatic adapter/stub

generator.

        Click et al (US Pub. No. 20020083416 A1) discloses an automatic stub/adapter

generator.

Bak et al (US Pat. No. 6415381 B1) discloses a mixed execution stack and exception handling.

Adams et al (US Pub. No. 20020147971 A1) discloses object-oriented class loading system and method.

Pelizza et al (US Pub. No. 20080010664 A1) discloses a method and system for providing interactive services in digital television.

Fraenkel et al (US Pub. No. 20030121031 A1) discloses a delegation-based class loading of cyclically dependent components.

Houldsworth (US Pub. No. 20050188343 A1) discloses operation of a java virtual machine.

12.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to CALVIN TROWELL whose telephone number is (571)270-7845. The examiner can normally be reached on Monday thru Thursday 7:30 AM til 5:00 PM, Alternate Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Cheng can be reached on (571)272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO

Customer Service Representative or access to the automated information system, call

800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. T./   /Joe H Cheng/
Examiner, Art Unit 4115   Supervisory Patent Examiner
02/17/08   Art Unit 4115